



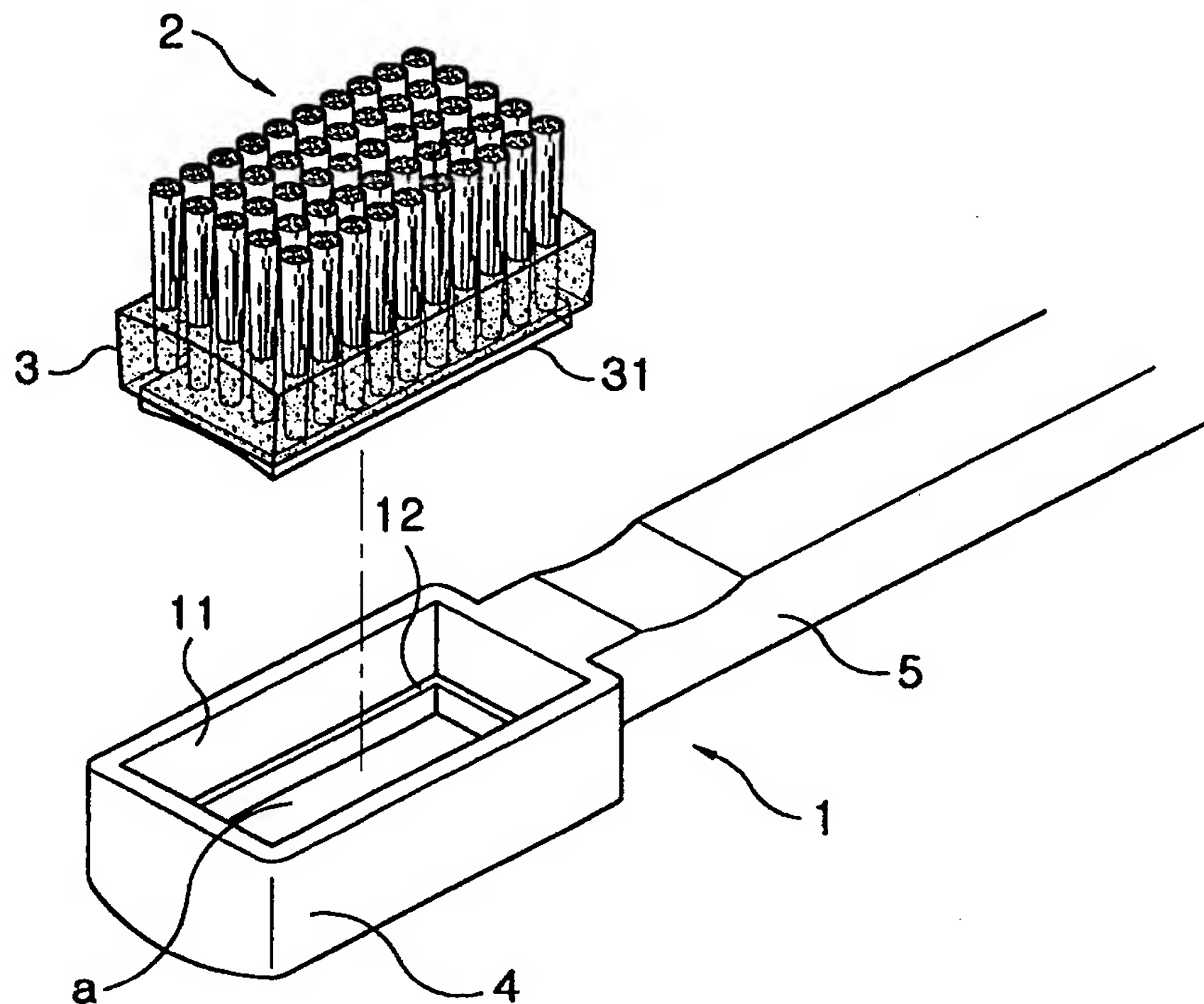
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : A46B 9/04	A1	(11) International Publication Number: WO 00/40115 (43) International Publication Date: 13 July 2000 (13.07.00)
(21) International Application Number: PCT/KR99/00831 (22) International Filing Date: 29 December 1999 (29.12.99) (30) Priority Data: 1998/28322 31 December 1998 (31.12.98) KR 1999/10968 30 March 1999 (30.03.99) KR (71)(72) Applicant and Inventor: PARK, Kyoung, Sik [KR/KR]; 305, Yunchang Apt., 634-45, Haengshin-dong, Duck- yang-gu, Koyang-city, Kyunggi-do 412-220 (KR). (74) Agent: JO, Eui, Je; Top Patent & Law Firm, Yosam Building, 3F, 648-23, Yuksam-dong, Kangnam-ku, Seoul 135-081 (KR).		(81) Designated States: AU, CA, CH, CN, DE, FI, GB, JP, NO, NZ, RU, SE, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: TOOTH BRUSH

(57) Abstract

Disclosed is a tooth brush in which a base plate (3) is buffered when bristles contact the faces of teeth. The tooth brush comprises a base plate (3), having a lot of bristles and high elasticity, which is composed of a soft material having good restoring force, and a base plate case (4) including a recess (11), in which a predetermined space (2) is formed between the base plate (3) and the bottom thereof. The tooth brush of the present invention buffers the base plate (3) according to upper, lower, left and right brushing directions of the tooth brush, and adaptably and elastically presses bristles against the curved faces of the teeth and gums, thereby solving a defect of the conventional tooth brush.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon	KR	Republic of Korea	PL	Poland		
CN	China	KZ	Kazakstan	PT	Portugal		
CU	Cuba	LC	Saint Lucia	RO	Romania		
CZ	Czech Republic	LI	Liechtenstein	RU	Russian Federation		
DE	Germany	LK	Sri Lanka	SD	Sudan		
DK	Denmark	LR	Liberia	SE	Sweden		
EE	Estonia			SG	Singapore		

TOOTH BRUSH

TECHNICAL FIELD

5 The present invention relates to a tooth brush, and more particularly to a tooth brush which buffers a base plate according to upper, lower, left and right brushing directions of the tooth brush, and adaptably and elastically presses bristles against the inner and outer curved faces of teeth and gums, thereby to allow the teeth to be cleaned out and the gums to be
10 brushed and massaged without damage, and prevents the peripheral of the base plate from being filled with foreign materials.

BACKGROUND ART

15 Generally, a common tooth brush includes a body having bristles and a handle extending from the body. There have been various developments in the tooth brush to prevent the teeth and gums from being damaged.

Conventionally, Korean utility model publication no. 94-5243 discloses a tooth brush for preventing the faces of the teeth from being damaged.

20 This tooth brush comprises an upper plate having a plurality of holes through which bristle members are planted and into the bottom of which the bristle members are exposed, a lower plate which is integrally incorporated as part of a body of the tooth brush, having predetermined recesses to make the upper plate be stably disposed, and an elastic plate
25 which is placed between the upper plate and the lower plate, and with which the lower ends of the bristle members contact elastically.

Accordingly, the bristle members move up and down through the holes of the upper plate and contact raised portions on the elastic plate, to thereby adaptably work on the curved faces of the teeth.

30 However, the bristle members come in and out through the holes when using the tooth brush, and thus foreign materials are introduced from the

external to the internal thereof and decay in case that the tooth brush is used for a long time. Accordingly, the conventional tooth brush causes a problem in insanitary condition.

Also, in case that the bristle members are deformed or the foreign
5 materials are introduced into the holes, there is a drawback that the bristle members have little up-and-down movement

Specially, the conventional tooth brush should be provided with the following requirements.

Frist, the tooth brush should have a structure which allows the lower
10 ends of bristle members to be smoothly moved through holes of the brush member,

second, it is necessary to provide a base plate having the holes so that the bristle members are moved up and down,

third, it is necessary to provide an elastic plate having a plurality of
15 raised portions which correspond to the lower ends of the bristle members,

fourth, recesses which are positioned below the elastic plate and formed on the bottom of the tooth brush body, should exactly fit into the raised portions of the elastic plate, and

fifth, the tooth brush has a structure in which the above respective
20 elements are assembled. Accordingly, the conventional tooth brush is complex in structure rather than function.

DISCLOSURE OF INVENTION

25 To solve the above problems, it is an object of the present invention to provide a tooth brush having a simplified base plate without moving brush members themselves up and down.

It is another object of the present invention to provide a tooth brush which assures brush members to be buffered.

30 It is yet another object of the present invention to provide a buffing tooth brush having a simplified assembly structure constituting bristle

members, a base plate, an elastic plate and a lower plate.

It is still another object of the present invention to provide a hygienic tooth brush which makes a lower portion of a base plate and a body tightly closed with each other, to thereby prevent foreign materials from
5 being left.

To accomplish the above objects of the present invention, there is provided a tooth brush comprising:

a base plate, having a lot of bristles and high elasticity, composed of a soft material having good restoring force; and a base plate case including a
10 recess, in which a predetermined space is formed between the base plate and the bottom thereof.

It is preferable that the recess of the base plate case and the base plate have a dual structure to form the space between the base plate and the base plate case. Also, a lower portion of the base plate is in a
15 central-raised shape to facilitate a contact force with the curved circumferential surfaces of the teeth. It is preferable that the base plate is composed of a silicon material. Furthermore, it is preferable that the space is formed so that the lower portion of the base plate is spaced apart at an interval not being in contact with the bottom of the recess when the base
20 plate is pressed.

BRIEF DESCRIPTION OF DRAWINGS

The preferred embodiment is described with reference to the drawings
25 wherein:

Fig. 1 is a perspective view showing a state that a body and a base plate are combined in a tooth brush according to the present invention;

Fig. 2 is a perspective view showing a state that a body and a base plate are divided from a tooth brush according to the present invention
30 prior to manufacturing the tooth brush;

Fig. 3 is a sectional view taken along a line A-A of Fig. 1 according

to the present invention;

Fig. 4 is a sectional view taken along a line B-B of Fig. 1 according to the present invention;

Fig. 5 is a sectional view taken along a line A-A of Fig. 1 according to the present invention to show a use state of a tooth brush; and

Fig. 6 is a sectional view brush taken along a line B-B of Fig. 1 according to the present invention to show a use state of a tooth brush.

BEST MODE FOR CARRYING OUT THE INVENTION

A preferred embodiment of the present invention will be described in detail with reference to the accompanying drawings.

Fig. 1 is a perspective view showing a state that a body and a base plate are combined in a tooth brush according to the present invention, Fig. 2 is a perspective view showing a state that a body and a base plate are divided from a tooth brush according to the present invention prior to manufacturing the tooth brush, Fig. 3 is a sectional view taken along a line A-A of Fig. 1 according to the present invention, and Fig. 4 is a sectional view taken along a line B-B of Fig. 1 according to the present invention.

As shown in Figs. 1 to 4, the present invention comprises a base plate case 4, having a predetermined space 'a', extending from one end of a longitudinal body 5, and a base plate 3 on which bristles are planted, being combined with the base plate case 4. The base plate case 4 includes a recess 11 into which the base plate 3 is positioned. The recess 11 has a structure of accommodating a part of the base plate 3 so that the space 'a' is formed between the base plate 3 and the bottom of the recess 11 when the base plate 3 is combined thereto.

Such a structure of the base plate 3 can be established by a protrusion 12 which is formed along an inner circumferential surface of the base plate case 4. Preferably, a protrusion 31 corresponding to the protrusion 12 is formed at the lower portion of the base plate 3.

Accordingly, the base plate 3 is inserted into the recess 11 of the base plate case 4, and is stably disposed at the protrusion 12 of the base plate case 4. Between the base plate 3 and the bottom of the base plate case 4, the space 'a' is formed.

5 When the base plate 3 is inserted and combined into the recess 11 of the base plate case 4, a predetermined bonding structure is required.

Fig. 5 is a sectional view taken along a line A-A of Fig. 1 according to the present invention to show a use state of a tooth brush, and Fig. 6 is a sectional view brush taken along a line B-B of Fig. 1 according to the
10 present invention to show a use state of a tooth brush. Examples are described with reference to the drawings.

Bristles 2 in the tooth brush according to the present invention elastically and adaptably work on the curved faces of teeth 100 and spaces therebetween and allow the faces of the teeth and spaces to be cleaned out,
15 reducing the contact force with the teeth. The bristles play a role of reducing the contact force against the curved inner and outer faces of the teeth but appropriately increasing the contact force against the interspaces thereof.

That is, the base plate which is composed of a soft material and has
20 good restoring force, forms the space 'a' by which the protrusion 31 is stably disposed at the protrusion 12 formed along the inner circumferential surface of the recess 11 in the base plate case 4. This space 'a' provides an appropriate buffing force required for contacting the teeth interspaces. The tooth brush of such a structure is fully reinforced with the buffing
25 force of the base plate by a property of the soft material, irrespective of bristles being composed of a soft material or hard material. In order to appropriately support an up-and-down movement of the base plate, a predetermined soft material is employed for use in the base plate, and preferably a silicon material is used.

30 The tooth brush according to the present invention elastically and adaptably works on the curved faces and interspaces of the teeth and

allows the faces and interspaces thereof to be cleaned out, by the base plate being moved up and down in the space 'a'. Differently from the conventional tooth brush that the bristle members maintain a constant contact state when working on the faces of the teeth, the present invention
5 provides effects that prevent the faces of the teeth from being unnecessarily scrubbed for further insertion therein when cleaning the interspaces of the teeth, and protect the gums not to be unnecessarily brushed when cleaning the faces of the teeth.

10

15

20

25

30

CLAIMS

1. A tooth brush comprising:

5 a base plate, having a lot of bristles and high elasticity, composed of a soft material having good restoring force; and

a base plate case including a recess, in which a predetermined space is formed between the base plate and the bottom thereof.

10 2. The tooth brush according to claim 1, wherein said base plate case and said base plate are combined by protrusions corresponding to each other.

3. The tooth brush according to claim 1, wherein a lower portion of said base plate is in a central-raised shape.

15 4. The tooth brush according to claim 1, wherein the base plate is composed of a silicon material.

20 5. The tooth brush according to claim 1, wherein the space is formed so that the lower portion of the base plate is spaced apart at an interval not being in contact with the bottom of the recess when the base plate is pressed.

25

30

1/4

FIG. 1

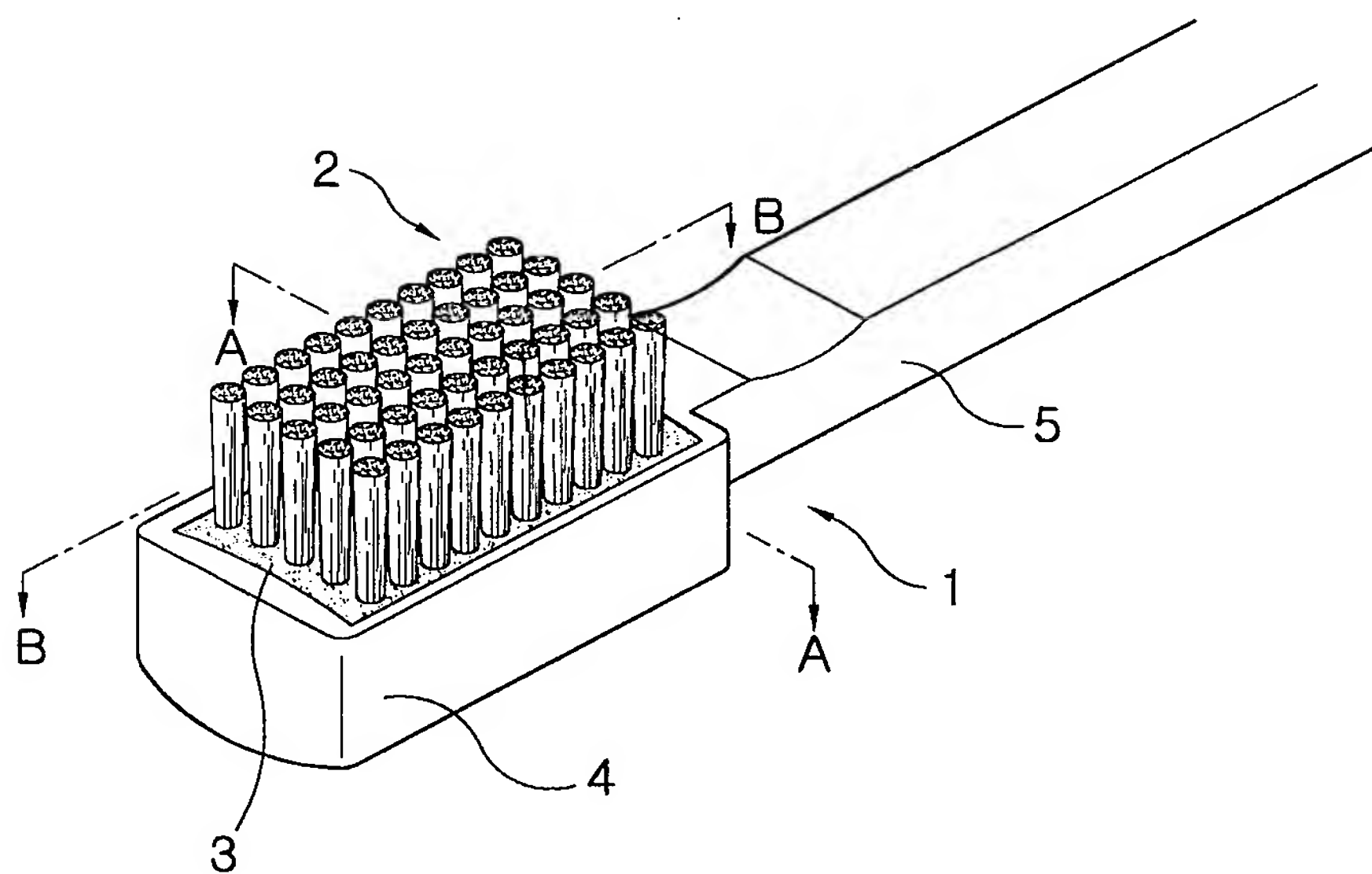


FIG. 2

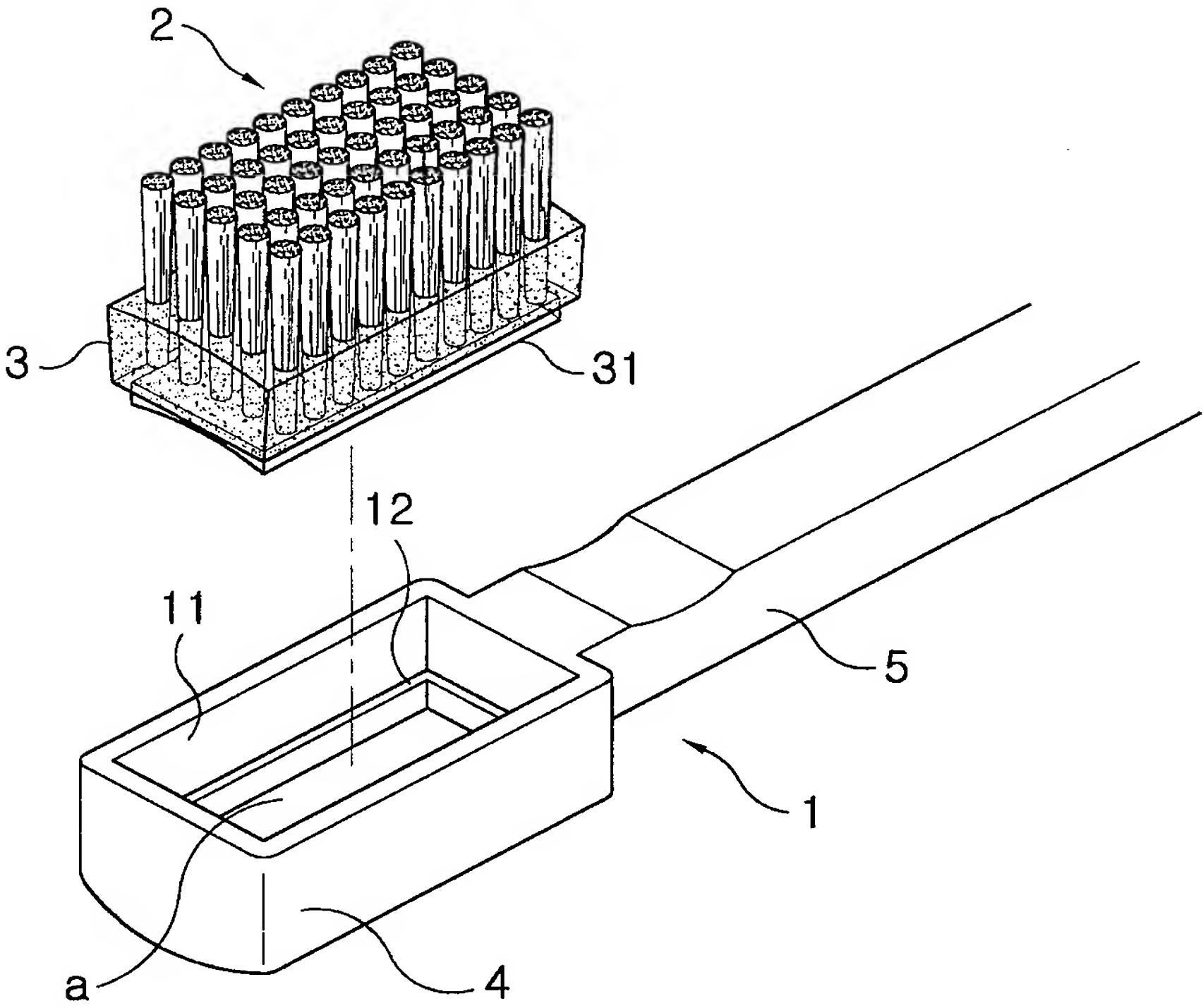
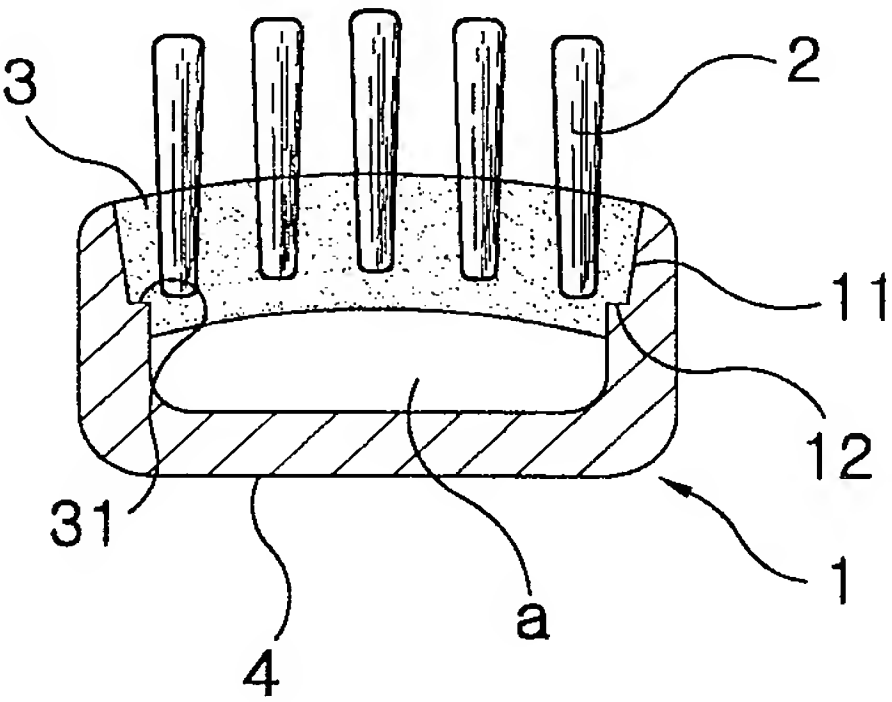


FIG. 3



3/4

FIG. 4

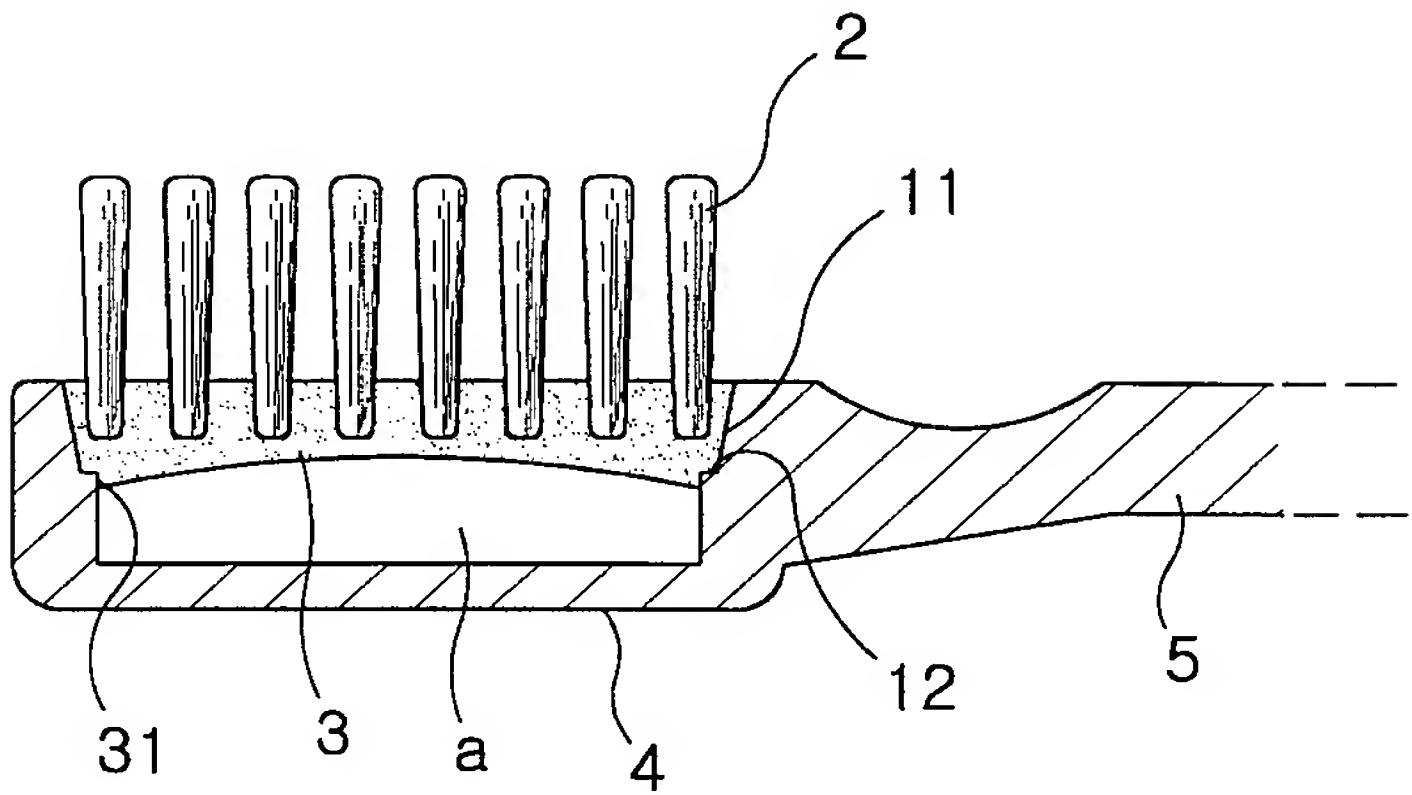
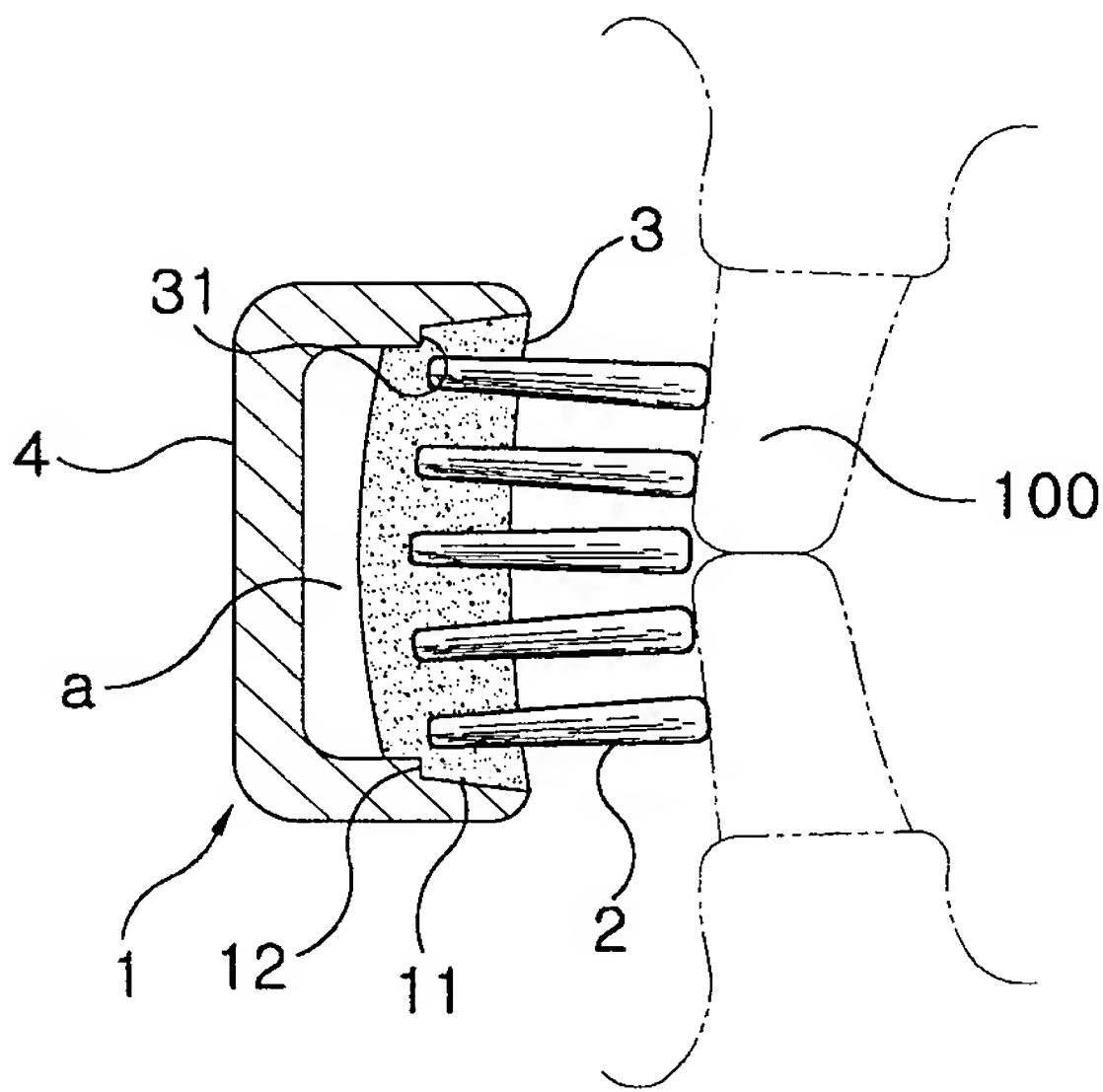
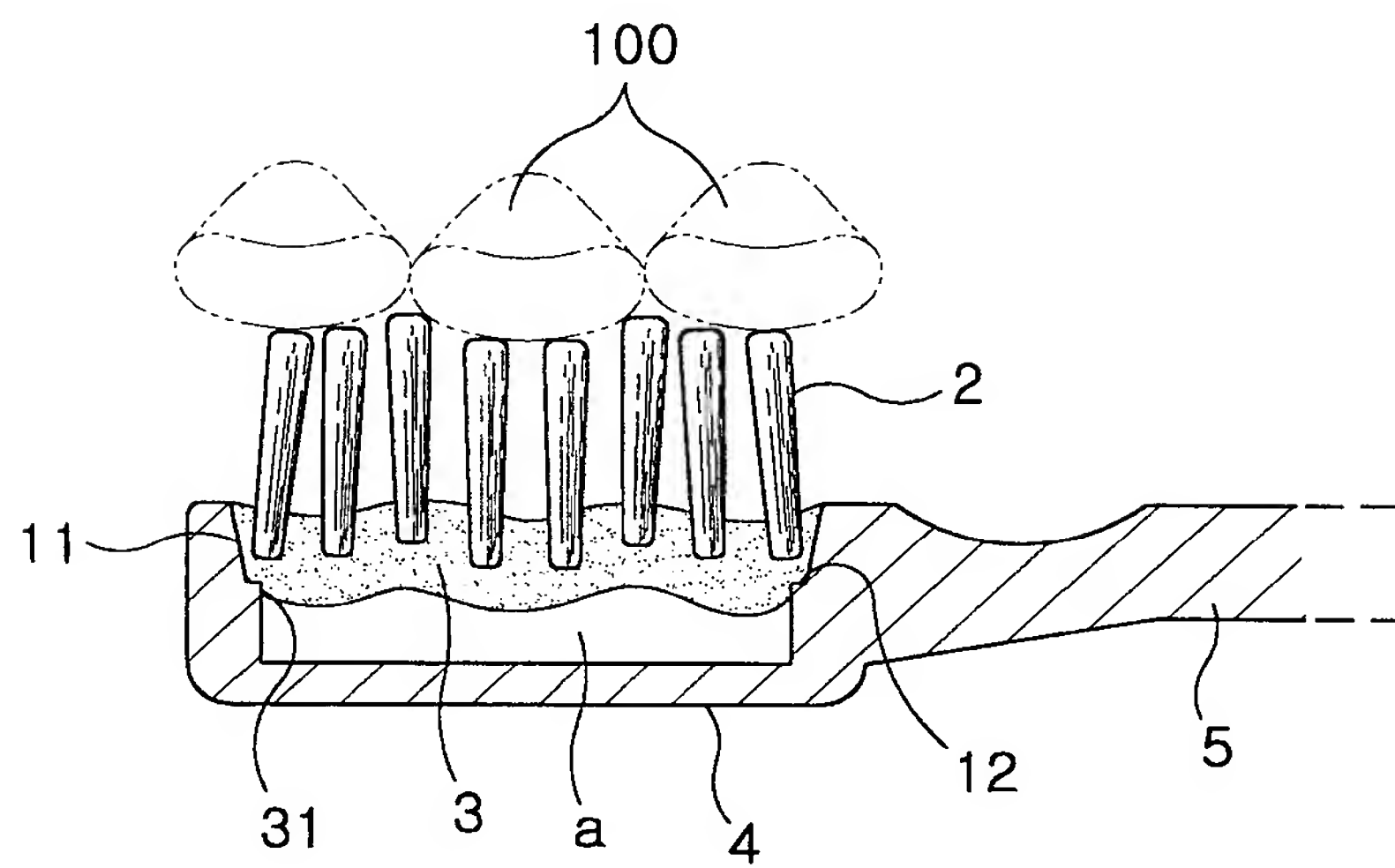


FIG. 5



4/4

FIG. 6



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 99/00831

A. CLASSIFICATION OF SUBJECT MATTER

IPC⁷: A 46 B 9/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: A 46 B, A 61 C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 19624962 A1 (CORONET-WERKE GMBH) 02 January 1998 (02.01.98), fig.	1-5
A	EP 0870440 A (PONZINI SPA) 14 October 1998 (14.10.98) fig. 1.	1
A	DE 19600767 C1 (RUEB) 05 December 1996 (05.12.96), totality.	1-5

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

„A“ document defining the general state of the art which is not considered to be of particular relevance

„E“ earlier application or patent but published on or after the international filing date

„L“ document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

„O“ document referring to an oral disclosure, use, exhibition or other means

„P“ document published prior to the international filing date but later than the priority date claimed

„T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

„X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

„Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

„&“ document member of the same patent family

Date of the actual completion of the international search

02 May 2000 (02.05.00)

Date of mailing of the international search report

08 May 2000 (08.05.00)

Name and mailing adress of the ISA/AT

Austrian Patent Office
Kohlmarkt 8-10; A-1014 Vienna
Facsimile No. 1/53424/200

Authorized officer

Pirker

Telephone No. 1/53424/322

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR 99/00831

Patent document cited in search report			Publication date	Patent family member(s)			Publication date
DE	A1	19624962	02-01-1998	AU	A1	32616/97	14-01-1998
				AU	A1	34351/97	14-01-1998
				BR	A	9709935	10-08-1999
				BR	A	9709936	10-08-1999
				CA	AA	2257502	31-12-1997
				CA	AA	2258096	31-12-1997
				CZ	A3	9804215	14-04-1999
				CZ	A3	9804216	14-04-1999
				EP	A1	910259	28-04-1999
				EP	A1	942668	22-09-1999
				EP	B1	910259	19-04-2000
				NO	A	985853	14-12-1998
				NO	A0	985853	14-12-1998
				PL	A1	330526	24-05-1999
				PL	A1	330722	24-05-1999
				SK	A3	1755/98	12-07-1999
				WO	A1	9749314	31-12-1997
				WO	A1	9749315	31-12-1997
EP	A1	870440	14-10-1998	IT	A1	970258	07-08-1998
				IT	B1	1290284	22-10-1998
DE	C1	19600767	05-12-1996	EP	A2	783850	16-07-1997
				EP	A3	783850	07-01-1998